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SECTIONS OF TWO MICHIGAN SALT WELLS¹

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In connection with recent investigations of American salines by this bureau samples from two wells of the Manistee region of Michigan were obtained through the courtesy of Mr. George Abair, of the Peters Salt Co., East Lake, Mich.

All of the samples examined in the preparation of the sections were obtained by drilling, and consequently many of them were

SECTION OF WELL AT LUDINGTON, MICH. STEARNS SALT & LUMBER CO.

No.	Depth in Feet	
10.....	517- 520	Calcareous sandstone
20.....	520- 533	Calcareous and shaly sandstone
21-22.....	533- 573	Calcareous shale
23-24.....	573- 603	Calcareous and sandy shale
25.....	603- 608	Calcareous shale
26.....	608- 609	Sandy calcareous shale
27.....	609- 615	Buff calcareous and sandy shale
28-39.....	615- 838	Calcareous shale
40-60.....	838-1,211	Sandy calcareous shale
61-69.....	1,211-1,390	Calcareous shale
70-73.....	1,390-1,463	Limestone (impure)
74-90.....	1,463-1,801	Fairly pure limestone
91-97.....	1,801-1,935	Dolomitic limestone
98-102.....	1,935-2,021	Calcareous mudstone
103-115.....	2,021-2,281	Limestone
116.....	2,281-2,290	Halite

in a rather finely pulverized condition. In a number of cases, however, fragments large enough for macroscopic examination were present. In such, the specimens were determined primarily by macroscopic methods. In the cases where all of a particular sample was very finely pulverized, the material was mounted in various oils of definite refractive indices and the mineral constituents determined by the ordinary petrographic methods.

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The macroscopic examinations were also checked by this microscopic study. In addition, each sample was subjected to the action of both dilute and concentrated hydrochloric acid, and the character of the effervescence confirmed or modified the previous

SECTION OF WELL 500 FEET FROM EAST LAKE STATION, OF THE
PLANT OF THE R. G. PETERS SALT CO.

No.	Depth in Feet	
1.....	593	Blue calcareous shale
2.....	597	Calcareous shale
3.....	800	Calcareous shale
4.....	978	Limestone
5.....	1,325	Limestone
6.....	1,400	Limestone
7.....	1,425	Limestone
8.....	1,450	Limestone
9.....	1,475	Limestone
10.....	1,487	Calcareous shale
11.....	1,500	Limestone
12.....	1,595	Limestone
13.....	1,605	Limestone
14.....	1,638	Limestone containing sponge spicules
15.....	1,645	Calcareous shale containing sponge spicules
16.....	1,650	Calcareous shale containing sponge spicules
17.....	1,652	Calcareous shale containing sponge spicules
18.....	1,656	Calcareous shale
19.....	1,658	Calcareous shale
20.....	1,661	Limestone
21.....	1,680	Limestone
22.....	1,690	Limestone (rather impure)
23.....	1,700	Limestone (very sandy)
24.....	1,762	Limestone (very sandy)
25.....	1,780	Limestone (very sandy)
26.....	1,800	Calcareous sandstone
27.....	1,810	Calcareous sandstone
28.....	1,820	Limestone
29.....	1,830	Limestone
30.....	1,850	Limestone
31.....	1,860	Limestone
32.....	1,870	Limestone
33.....	1,880	Limestone
34.....	1,895	Limestone
35.....	1,920	Limestone
36.....	1,930	Silicious and ferruginous limestone
37.....	1,940	Silicious and ferruginous limestone
38.....	1,964	Shaly limestone

examinations. Difficulty was encountered in determining whether some particular samples, especially the finely pulverized samples, should be referred to the limestone or to the shale group. For example, it was found impossible to say absolutely whether a

particular mount was a calcareous shale or a shaly limestone. But predominance of one or the other of the materials was considered sufficient to place a sample, the less abundant material being considered as an impurity and being indicated by an appropriate adjective. Before coming into the writer's hands, the samples had been subjected to a mechanical analysis and all particles less than 0.005 mm. diameter discarded. The amounts of these very small particles, however, were not large enough to vitiate the accuracy of the determinations.

The sections are given in the accompanying tables.